

**New Hampshire  
Department of Environmental Services  
Wetlands Bureau Mitigation Program**



**AQUATIC RESOURCE  
MITIGATION FUND**

**Connecticut River from Johns to  
Waits River Watershed  
Site Selection Committee  
Recommendations**

*June 2010*



## INTRODUCTION

The New Hampshire Department of Environmental Services (DES) Aquatic Resource Mitigation (ARM) Fund was established by law in August, 2006 as a mitigation option for certain projects not able to provide other forms of mitigation. The ARM Fund Site Selection Committee (Committee) was set up to provide a mechanism for reviewing, evaluating, and selecting wetland restoration, upland preservation, wetland creation, and other aquatic resource improvement proposals. According to the law, the projects determined to be appropriate for receipt of ARM Fund monies are subject to approval by the US Army Corps of Engineers (ACE) and the NH Wetlands Council (Council).

The Committee is charged with identifying proposals to be funded by selecting high priority projects that most effectively compensate for the loss of functions and values in the watershed. The Council is charged with approving disbursements of the ARM Fund based on recommendations provided by the Committee per RSA 482-A:29.

On September 28, 2009 DES announced the availability of \$157,000 with a deadline for proposal submittal of March 26, 2010 for the watershed. The funds came from six permitted projects located in the towns of Bethlehem, Dalton, Jefferson, Littleton, and Whitefield (See Attachment A). These permitted projects impacted the following functions: wildlife habitat and groundwater discharge. Three applications were received in response to the solicitation and are summarized below.

**A. Project Proponent:** Ammonoosuc Conservation Trust (ACT)

**Project Title:** Ammonoosuc River Floodplain and Riparian Buffer Preservation and Restoration Project, Lisbon

The 47-acre commercially zoned site has 4,200 linear feet of shoreline on the Order 4 Ammonoosuc River, a lower perennial stream with a cobbly/gravel channel bottom with bedrock present near the northern sharp bend in the river. Nearly the entire site is within the floodplain of the Ammonoosuc River and most of it floods regularly. It is located within the highest yielding and deepest aquifer in the Ammonoosuc River Valley. The site is also located upstream of two municipal water supplies at Lisbon and Woodsville. This river valley has experienced a significant increase of development over the years. This parcel's wide, flat conditions and its being conveniently located along Route 302 makes the site very desirable for developers of large and small-scale commercial sites. The rate of development in the Ammonoosuc River Valley and the increase in impermeable surfaces has been notable, particularly around Exit 42 in Littleton, which has seen big box stores such as Wal-Mart, Shaw's, Lowe's, and Home Depot constructed in the floodplains of the Ammonoosuc.

The site is approximately 350 feet wide at its narrowest point and 1,000 feet at its widest. Past excavation of the site occurred for the rebuilding of the Route 302 bridge and the railroad underpass. More recent flood flows have created a new channel section which is permanently to semi-permanently flooded. High velocities as recent as late January 2010 have caused erosion potholes, some of which are saturated. A four-acre island created by the new channel is a mixed forested floodplain and is ranked by NH Fish & Game's Wildlife Action plan as a highest ranked habitat in the biological region by ecological condition. The majority of the site (over 85%) is low floodplain and had alluvial soils before excavation. The remaining site was low terrace outwash soils abutting the railroad fill slope. The floodplain currently supports a sparsely vegetated herbaceous and shrub community of pioneer species including goldenrod, willow, cherry, and grey birch. The southern end, primarily along the rail trail on the old railroad bed, is dominated by white pine and poplar. Excavated areas that have been scoured have resulted in small, semi-permanently flooded wetlands that are fed by shallow groundwater. The most recent scouring has eliminated much of the woody vegetation in these areas.

ACT proposes to purchase, fee simple, for permanent conservation and restoration, one of the most damaged, high-visibility floodplains of the Ammonoosuc River. The project will then survey, map,

inventory, evaluate resources, provide temporary erosion control and begin restoring the riparian buffer as funds permit, and prepare a long-term management and restoration plan. The long-term goal is restoration of the land as a forested floodplain and restoration of the river channel to a healthy, aquatic habitat. The requested funds will allow ACT to begin the conservation and preliminary restoration tasks with the anticipation of future funding to accomplish long-term goals. The detailed project tasks and proposed budget are as follows:

### **ARM Budget by Task**

The following tasks are planned as part of the ARM grant:

• Purchase and management of the 47-acre parcel by Ammonoosuc Conservation Trust to include appraisal, legal/title	\$66,000
• Establish conservation fund for long-term management including payment of taxes, monitoring and legal responsibilities	\$15,000
• Map and inventory wetlands and existing plant communities, soil mapping	\$5,000
• Complete survey, topographic map, and mapping of natural resources	\$5,000
• Assess priorities for short-term stabilization and erosion control and implement as funds allow	\$12,000
• Install shallow monitoring wells to begin an understanding of water tables and shallow groundwater conditions in order to plan future restoration vegetative communities	\$2,500
• Complete hydrologic, fluvial, morphological, and fisheries studies	\$9,500
• Gate and signage	\$1,500
• Develop a long-range management and restoration plan in conjunction with NRCS, NHDES, NH F&G, Town of Lisbon, Trout Unlimited, Ammonoosuc River LAC, and landowners along this reach of the river. Apply for additional grants to implement long-range restoration plan including DES, WHIP, and the Upper Connecticut River Mitigation and Enhancement Fund	\$12,500
• State, federal, and local permitting	\$8,000
• Provide ongoing educational and public outreach work on the project, by holding informational sessions and tours for town officials, landowners, and the public; by using local and statewide media and Web-based communications; and by working with local schools to encourage use of the site for outdoor classrooms and involve students in restoration activities as appropriate. Provide research results to other potential river restoration projects	\$15,000
Grant amount requested:	\$152,000
Amount of matching funds proposed:	\$0
Total project costs:	\$152,000

**B. Project Proponent:** Ammonoosuc Chapter of Trout Unlimited

**Project Title:** Tuttle Brook Habitat Restoration Project, Carroll

This project proposes to remove an existing undersized culvert that blocks fish passage within Tuttle Brook in Carroll and replace with a bridge that will meet the new stream crossing rules and span the entire channel and banks and allow both aquatic and riparian connectivity. The new bridge abutments, wing walls and footings will be installed and channel reconstructed to appropriate grades and locations. Natural flexible materials will be incorporated into the design of the wing walls and interface of channel and abutments. A riparian shelf will be created to allow dry passage of non-aquatic wildlife under the bridge.

This site was identified as a top priority for culvert replacement in a 2005 fish passage barrier study. The undersized culvert lies within an aquifer and a Wellhead Protection Area. Habitat and aquatic connectivity will benefit a documented population of Atlantic Salmon to access an Outstanding Resource Water and thousands of acres of land conserved by the White Mountain National Forest. The project is intended to restore aquatic connectivity to 1.8 miles of perennial channel upstream of the existing culvert and facilitate riparian-related access to wildlife habitat. The segment of Tuttle Brook on the town property is approximately 2,500 linear feet. The proposal includes providing a deed restriction for a 100 foot buffer on both sides of the brook which will protect 12 acres from clear cutting, development, structures, and excavation.

Grant amount requested:	\$111,000
Amount of matching funds proposed:	\$13,000
Total project costs:	\$124,000

**C. Project Proponent:** NH LAKES Lake Conservation Corps Program

**Project Title:** 14 landowners on Partridge Lake, Littleton

Fourteen shoreline properties have been identified by the Partridge Lake Property Owners Association as being in need of restoration primarily to reduce the amount of non-point source runoff that pollutes the lake. Partridge Lake is listed as an impaired waterbody by NHDES for cyanobacteria and low dissolved oxygen which can be attributed to non-point source pollution from the watershed. NH LAKES is proposing to implement its Lake Conservation Corps (LCC) Program in the Partridge Lake Watershed on 14 properties over a three-year period to reduce the amount of non-point source pollution that flows into the lake from the watershed. BMP installations, such as vegetated buffers and swale and rain gardens, will be constructed so that they connect to other vegetated areas on the landscape to provide connectivity of natural areas for enhanced wildlife habitat.

Grant amount requested:	\$85,884
Amount of matching funds proposed:	\$21,155
Total project costs:	\$107,039

## **RESULTS OF ARM FUND SITE SELECTION COMMITTEE REVIEW**

The Committee and Department visited the sites and on May 26 the Committee convened to evaluate and rank the applications with the findings noted below. Location maps of the parcels are included in Attachment A.

**1<sup>st</sup>. Ammonoosuc River Floodplain and Riparian Buffer Preservation and Restoration Project, Lisbon**

- A. The project provides the most similar functions to what was lost in the watershed through the projects that generated the funds.
- B. The site is within the most productive and transmissive aquifer in the Ammonoosuc River Valley.
- C. The parcel is zoned commercial and is in a highly desirable location for potential development with easy access to the major roadway, NH Route 302.
- D. The site has over 4,200 linear feet of shoreline on the Ammonoosuc River which is a cold water fishery, stocked with trout, and is part of the Atlantic Salmon Restoration program with annual salmon stocking.
- E. The purchase of the 47 acre parcel for permanent conservation will allow the Ammonoosuc Conservation Trust to review the opportunity for floodplain forest restoration and pursue long-term goals for site stabilization.
- F. As noted in the application, the budget includes items needed to begin the conservation and restoration process with the understanding that future funding will be needed to accomplish

the long-term project goals.

- G. The site has great potential for the development of a stable, floodplain system over time that may include restoration of important natural exemplary communities.

## 2<sup>nd</sup>. Tuttle Brook Habitat Restoration Project, Carroll

- A. The proposed replacement of the existing perched culvert that is a fish passage barrier has immediate restoration opportunity by improving 1.8 miles of aquatic connectivity of perennial stream and facilitates riparian related access to wildlife.
- B. Much of the riparian habitat lies within the unfragmented forest land of the White Mountain National Forest.
- C. The project is located on a town-owned parcel that will continue to be used as a sand pit and for outdoor recreation purposes including snowmobiling.
- D. The Town agrees to place a deed restriction on approximately 2,500 linear feet for a buffer of 100 feet of both sides of Tuttle Brook to extend upstream and downstream from the project to protect it from future development. The buffer will protect 12 acres along the entirety of the property and will prohibit clear cutting, development, structures and excavation.

## 3<sup>rd</sup>. NH LAKES Lake Conservation Corps Program, Partridge Lake, Littleton

- A. The project proposes water quality related improvements through a partnership that could have positive implications for future environmental advocates.
- B. The proposal is limited due to the work being proposed on non-contiguous shoreline parcels with relatively minimal restoration of groundwater discharge or wildlife habitat functions.
- C. The proximity of homes, roadways, and water related structures limits the amount of improvement that can be made at each of the 14 sites.
- D. There are very limited long term assurances that the property owners will maintain the shoreline improvements over time.

The Committee recommends partial funding of \$103,000.00 for the Ammonoosuc River Floodplain and Riparian Buffer Preservation and Restoration project. The Committee noted that the selected project provides the greatest potential to replace or protect specific wetland functions and values lost by the impacts in the Connecticut River from Johns to Waits River HUC 8 watershed. The funding will support the following tasks from the proposed budget:

- |  |          |
|--|----------|
| • Purchase and management of the 47-acre parcel by Ammonoosuc Conservation Trust to include appraisal, legal/title       | \$66,000 |
| • Establish conservation fund for long-term management including payment of taxes, monitoring and legal responsibilities | \$15,000 |
| • Map and inventory wetlands and existing plant communities, soil mapping  | \$5,000  |
| • Complete survey, topographic map, and mapping of natural resources   | \$5,000  |
| • Assess priorities for short-term stabilization and erosion control and implement as funds allow                        | \$12,000 |

In addition, the Committee recommends partial funding of \$54,000.00 for the Tuttle Brook Habitat Restoration project. The Committee noted the funds are contingent on the Town providing a protected buffer of 100 feet on both sides of Tuttle Brook. This buffer will protect approximately 2,500 linear feet of the brook on the town property. NHDES shall communicate the details of the award with the Chapter of Trout Unlimited following approval by the Army Corps and Wetland Council. If the Chapter is unable to secure additional funding to complete the financing of the project within six months of the

award, the following funds shall be provided to ACT for additional site efforts and completion of the remaining tasks noted below:

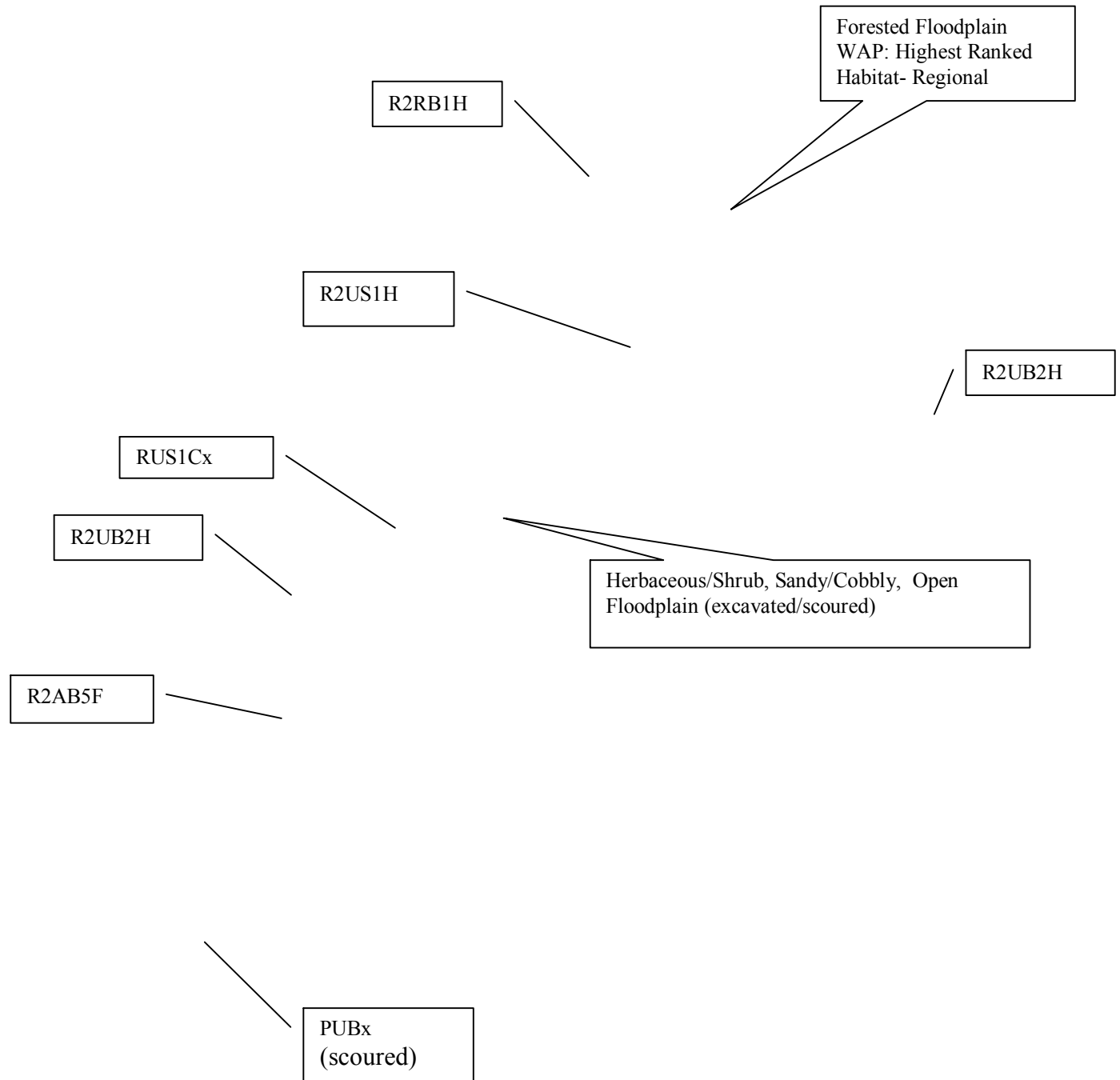
- Install shallow monitoring wells to begin an understanding of water tables and shallow groundwater conditions in order to plan future restoration vegetative communities \$2,500
- Complete hydrologic, fluvial, morphological, and fisheries studies \$9,500
- Gate and signage \$1,500

Any remaining funds shall remain in the watershed account and be applied to the next grant opportunity.

## ATTACHMENT A.

CONNECTICUT RIVER FROM JOHNS TO WAITS  
RIVER WATERSHED ARM FUND PAYMENTS

PERMIT #	LOCATION	PROJECT TYPE	COWARDIN CLASS	PRIMARY F/V's	OTHER ISSUES	WETLAND LOSS	PAYMENT AMOUNT	DEPOSIT DATE
2002-1856	Bethlehem	Subdiv with deed restrcts due to lawsuit. 10 lots on 75 ac.	PFO1B, PSS1B	Wildlife habitat	Abuts 77 ac SPNHF land, high elevation 1080-1220'	14,800	14904.44	7/20/2007
2002-2529	Littleton	Subdiv with esmnt that could not be finalized. 13 lots on 118 ac.	PFO1B	Wildlife habitat	Drains to Ammonsc River	11,898	29904.23	8/2/2007
2008-1529	Jefferson	Boardwalk in bog for USFWS	PFO4Ba, PSS3/EM1Ba	Wildlife habitat, recreation	Bog	210	503.51	3/24/2009
2008-1332	Dalton	Existing off-road rally car school and snowmobile trails	PSS1E, PEM1Bd, PEM1d, Perennial stream	Limited functions overall, general wildlife habitat		12,645	30357.77	4/13/2009
2008-1333	Whitefield	Airport Taxiway and aircraft reconstrction	PEM1(mowed areas near airstrip), PFO1, PSS1	Groundwater discharge and wildlife habitat		80,770	90,000	5/12/2009
2008-2762	Littleton	Expansion of Littleton hospital	PEM1B, PSS1B, PFO1/2/4/EM1B	Groundwater recharge/disch arge, Sed/Tox retention	Mitigation also includes restoration on site	12,933	32,506	3/27/2009
TOTALS						133,256	198175.54	

**ATTACHMENT B.****AMMONOOSUC RIVER FLOODPLAIN AND RIPARIAN BUFFER PRESERVATION  
AND RESTORATION PROJECT, LISBON**



**TUTTLE BROOK HABITAT RESTORATION PROJECT, CARROLL**

**NH LAKES ASSOCIATION, PARTRIDGE LAKE, LITTLETON**